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TWO INFRASUBSPECIFIC FORMS IN OLIVA

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There is perhaps more disarray in the genus *Oliva* than in any other group of shells. The writer, for the past several years, has been reviewing literature and studying collections both private and in museums, hoping that these efforts will culminate in the publication of a book with natural color photographs and proper synonymies. A contemporary review should be a welcome reference for the understanding and clarification of this misunderstood and neglected genus. Two shells have been encountered in these studies that appear deserving of new *forma* names. One of these is well-known but without an available name, while the other is quite uncommon and has been overlooked in the past. These new names are being proposed at the infrasubspecific level, and do not enter into the literature as pre-occupying subspecific names. Nor are they available as valid specific names.

Olive (Oliva) incrassata Lightfoot, 1786 (= *O. angulata* Lamarck, 1811)

The well-known Angled Olive, the heaviest member of the genus, varying in size from 50 - 88 mm. in length and up to 40 mm.

in width, is quite common and ranges from Lower California, throughout the Gulf of California, and down the Pacific coast to Peru. Many of these shells in the Gulf of California contain varying amounts of a brilliant golden-yellow coloration intergrading to a pure golden form. The only named color form is:

Oliva incrassata forma *nivea* Pilsbry, 1910

The rare pure-white albino found only in the northern end of the Gulf of California. (A rare unnamed glossy black form is also occasionally found.)

Oliva incrassata forma *burchorum* new form. Fig. 1.

This well-known, but heretofore unnamed form, is completely golden. It is felt that this form is worthy of a form name, just as the golden form of *O. sayana* Ravenel, 1834, on the Florida coasts merits the name *O. sayana* forma *citrina* Johnson, 1911. In its juvenile stage, the color is a deep-orange, tending to become more yellowish as the shell matures and develops its angular shoulder. Animals of both the golden and white forms are the usual buff color of typical *O. incrassata*. It is completely devoid of markings, rare, much-prized, and is known only from the northern end of the Gulf of California. Range — longitudes 113° west — 115° west, and latitudes 30° north — 32° north.

The holotype is in the American Museum of Natural History, New York City, No. 147749. The type locality is San Felipe, Baja California, Mexico. One paratype is in the collection of Mr. H. C. Porreca, West Henrietta, N. Y., and three are in the writer's collection, including the figured specimens.

The new name *burchorum* is proposed to honor John Q. and Rose L. Burch of California. No one in recent times has studied, written about, or contributed more to our knowledge of the genus *Oliva* than the Burch's. Their studies and voluminous notes on *Oliva* in the Minutes of the Conchological Club of Southern California (1958-60) have been of inestimable value. The Burch's reviewed and assembled the literature, and catalogued the Recent and Fossil Olives in 1960. They concluded that "there are a number of species to be described as new, and others that may prove to be variants of one species. These should be studied with care and published with proper illustrations." Their work, as well as their encouragement and assistance through personal communications, has been an inspiration.

Oliva (Oliva) tremulina Lamarck, 1811

This Indo-Pacific species has been controversial, as it is almost identical in appearance with *O. miniacea* Röding, 1798, long known as *O. erythrostroma* Lamarck, 1811 (non *O. erythrostroma* Meuschen, 1787, non binomial). The primary differentiating feature is that *O. tremulina* has a fleshy white aperture, while *O. miniacea* always has a deep reddish orange aperture. There are some parallel color variations in both species. *O. tremulina* like *O. miniacea* is elongated cylindrical, large, rather thick, longitudinally wave streaked and banded. Johnson and some other authors considered *O. tremulina* to be a form of *O. miniacea*. Burch felt that *tremulina*, in addition to the differentiating fleshy white aperture, was less swollen at the posterior or shoulder. He felt that they were otherwise close, but separable. Dautzenberg considered *O. tremulina* a valid species and named a color form. *Oliva nobilis* Reeve, 1850, is a synonym.

Distinct and recognized color forms of *O. tremulina* are:

Oliva tremulina forma *chrysoides* Dautzenberg, 1927.

A solid golden or orange form, which may have a very faint pattern. It is like *O. miniacea* forma *sylvia* Duclos, 1844, except for the white aperture.

Oliva tremulina forma *concinna* Marrat, 1871.

Uniform blackish brown in color, or sprinkled with a few triangular markings. Its counterpart is *O. miniacea* forma *marrati* Johnson, 1914.

Oliva tremulina forma *fumosa* Marrat, 1870.

Dautzenberg described this shell as "intermediate between typical *O. tremulina* and the variety *concinna*. The ground color is tawny-gray and the dark and cloudy pattern gives to the shell a smoky aspect. In certain examples, broad brown patches spread over much of the surface. The aperture is white and the lip is bordered with brown on the inside."

Oliva tremulina forma *olympiadina* Duclos, 1835.

A handsome Indian Ocean form which is always white, sometimes obscurely reticulated with purplish brown, but always having a more calloused white columella and white aperture. Johnson called this shell an albinistic form of *O. tremulina*.

Oliva tremulina forma *oldi*, new form. Fig. 2.

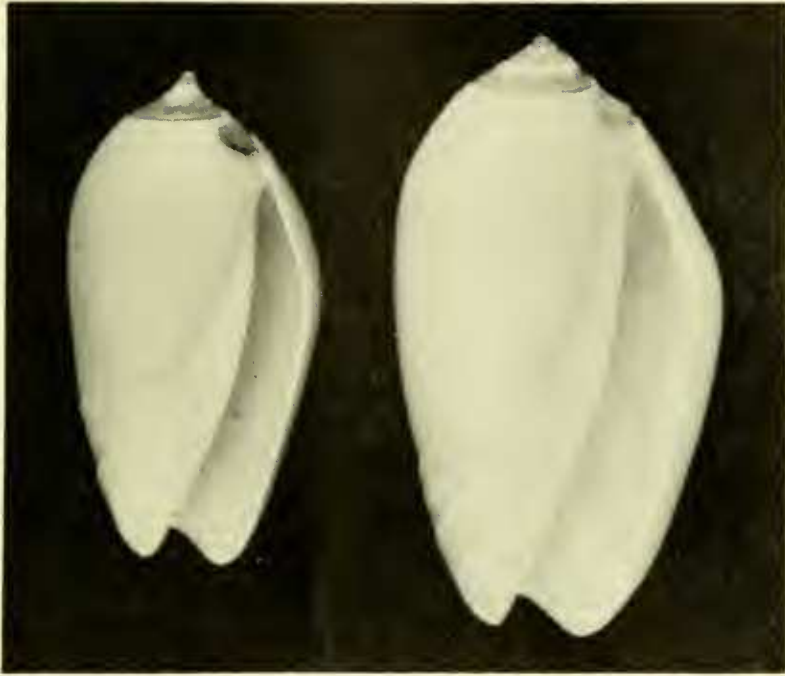


Fig. 1. Two paratypes of *Oliva incrassata* Lightfoot forma *burchorum* Zeigler. San Felipe, Baja California, Mexico. 35 and 41 mm. in length.

This is a distinctive and constantly marked shell, characteristically grayish in overall appearance, though background color is creamy yellow. Longitudinal charcoal zigzag lines usually crossed by two solid or broken dark transverse bands. Somewhat similar in pattern and markings to *O. textilina* Lamarck, 1810, but longitudinal lines are not so closely spaced as in that species. No matching color form in the species *O. miniacea* have been observed. Base of columella adorned with orange, above which is a heavy dark brown fasciole. Length 50-56 mm. Not common. Type locality: Bougainville Island, Solomon Islands. Additional specimens from Luzon, Philippine Islands, and Manus Island, Admiralty Group. Range — longitudes 120° east — 158° east and latitudes 8° south — 15° north.

The holotype is now in the American Museum of Natural History in New York City, No. 147750. There are four paratypes, two of which are in the author's collection (the figured specimens) and one each in the collections of John Q. Burch, Seal Beach, California and Walter G. Krause, Avoca Beach, N.S.W., Australia.

Many years ago, Dr. Howard Hill, former Curator of Marine Zoology at the Los Angeles County Museum, sent several speci-



Fig. 2. Two paratypes of *Oliva tremulina* Lamarck *forma oldi* Zeigler. Bougainville Island, Solomon Islands. Both 54 mm. in length.

mens of this shell to the writer labelled "unidentified from Bougainville." More of the same shells have since been obtained from Bougainville, as well as from Manus Island, and one from the Philippines.

Other specimens were found in the American Museum of Natural History collection, and William E. Old, Jr., supplied several specimens, all of which came from Bougainville. The name *oldi* is here proposed for this color form in honor of William E. Old, Jr., who has done much work and research on the genus *Oliva*, and who has been of invaluable assistance.

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GALAPAGAN RECORDS FOR MORUM VELEROAE (GASTROPODA: TONNACEA)

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Morum (Cancellomorom) veleroae Emerson (1968b, p. 53, pl. 1, figs. 1-7) was recently described by the writer on the basis of five sub-adult specimens obtained by dredging, in 1938, off Cocos Island, some 325 miles southwest of Costa Rica. Shortly after my manuscript, describing this interesting species was accepted for publication, Mesdames Carmen Angermeyer and Jacqueline DeRoy each reported (*in litteris*) taking living specimens of this species by dredging in the Galápagos Islands. Through the kindness of these industrious collectors, I can now provide additional data resulting from the Galapagan specimens.

Mrs. DeRoy dredged two living specimens in 100 meters near Tagus Cove, Isabella Island, on January 28, 1968. One is a large specimen measuring 52.2 mm. in length and 27.8 mm. in greatest diameter. This specimen, here illustrated as figs. 1, 2, possesses a very thin, immature, outer lip and it has not developed the parietal callus. The small tonnacid operculum has a marginal nucleus and concentric growth lines. A radula is wanting. The second